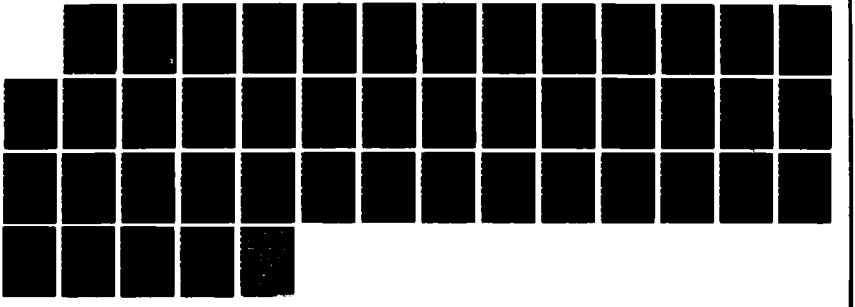
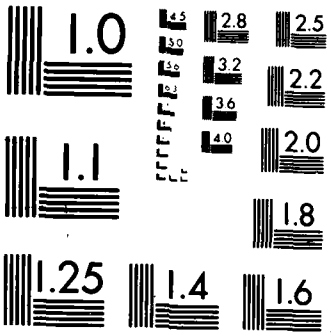
AD-A192 832 THE NORMANDY CAMPAIGN: FIREPOWER AT THE OPERATIONAL LEVEL(U) ARMY COMMAND AND GENERAL STAFF COLL FORT LEAVENWORTH KS SCHOOL OF ADVANCED MIL ITARY STUDIES 1/1

UNCLASSIFIED S R RICHARDSON 15 MAY 87 F/G 15/6 NL




1.0
1.1
1.25
1.4
1.6
1.8
2.0
2.2
2.5
2.8
3.2
3.6
4.0
4.5
5.0
5.6

The Normandy Campaign: Firepower at the Operational Level

Lieutenant Colonel Sterling R. Richardson
Field Artillery

School of Advanced Military Studies
U.S. Army Command and General Staff College
Fort Leavenworth, Kansas

6 May 1987

87-3078

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION: UNCLASSIFIED	1b. RESTRICTIVE MARKINGS
2a. SECURITY CLASSIFICATION AUTHORITY	3. DISTRIBUTION/AVAILABILITY OF REPORT: Approved forpublic release; distribution is unlimited
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE	
4. PERFORMING ORGANIZATION REPORT NUMBER(S)	5. MONITORING ORGANIZATION REPORT NUMBER(S)
6a. NAME OF PERFORMING ORGANIZATION: School of Advanced Military Studies; 6b. OFFICE SYMBOL (If applicable): ATZL-SWV	7a. NAME OF MONITORING ORGANIZATION
6c. ADDRESS (City, State, and ZIP Code): Fort Leavenworth, Kansas 66027-6900	7b. ADDRESS (City, State, and ZIP Code)
8a. NAME OF FUNDING/SPONSORING ORGANIZATION; 8b. OFFICE SYMBOL (If applicable)	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER
8c. ADDRESS (City, State, and ZIP Code)	10. SOURCE OF FUNDING NUMBERS: PROGRAM ELEMENT NO. / PROJECT NO. / TASK NO. / WORK UNIT ACCESSION NO.
11. TITLE (Include Security Classification)	
12. PERSONAL AUTHOR(S): Lieutenant Colonel Sterling R. Richardson	
13a. TYPE OF REPORT: Monograph; 13b. TIME COVERED: FROM _____ TO _____; 14. DATE OF REPORT (Year, Month, Day): 1987, May, 15; 15. PAGE COUNT: 39	
16. SUPPLEMENTARY NOTATION: (U) THE NORMANDY CAMPAIGN: FIREPOWER AT THE OPERATIONAL LEVEL	

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

This monograph examines the current U.S. doctrine regarding the role of firepower at the operational level. It reviews the most recent doctrinal guidance on this element of combat power and the historical underpinnings of this doctrine in the works of twentieth century military theorists such as Liddell Hart, Fuller and Miksche. The effort is directed toward assessing the impact of firepower planned, resourced, and executed at the operational level; specifically the relationship between operational firepower and operational maneuver.

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT: ☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT ☐ DTIC USERS	21. ABSTRACT SECURITY CLASSIFICATION: UNCLASSIFIED
22a. NAME OF RESPONSIBLE INDIVIDUAL: LTC Sterling R. Richardson	22b TELEPHONE (Include Area Code): (913) 684-3437; 22c. OFFICE SYMBOL: ATZL-SWV

DD Form 1473, JUN 86 *Previous editions are obsolete.* SECURITY CLASSIFICATION OF THIS PAGE

UNCLASSIFIED

The Normandy campaign from July to August in 1944 is studied as a historical case where firepower, employed by U.S. and Allied forces, was the catalyst for operational maneuver and the success of a campaign. This case study focuses principally on Operation Goodwood, Operation Cobra, and the Battle of the Falaise Pocket as examples where operational firepower played a preeminent role in the success of a series of operations culminating in the success of a campaign. Lastly, the monograph analyzes the lessons of this campaign and the relevance of these lessons for application at present in the NATO theater in light of changes since World War II in military technology and military techniques.

School of Advanced Military Studies
Monograph Approval

Name of Student: Lieutenant Colonel Sterling R. Richardson
Title of Monograph: The Normandy Campaign: Firepower at the Operational Level.

Approved By:

Harold R. Winton, Monograph Director
Lieutenant Colonel Harold R. Winton, Ph.D.

Richard Hart Sinnreich, Director, School of Advanced
Colonel Richard Hart Sinnreich, MA Military Studies

Gordon R. Sullivan, Deputy Commandant,
Major General Gordon R. Sullivan, MS Command and General Staff College

Accepted this 15th day of May 1987.

ABSTRACT

THE NORMANDY CAMPAIGN: FIREPOWER AT THE OPERATIONAL LEVEL by Lieutenant Colonel Sterling R. Richardson, USA, 38 pages.

This monograph examines the current U.S. doctrine regarding the role of firepower at the operational level. It reviews the most recent doctrinal guidance on this element of combat power and the historical underpinnings of this doctrine in the works of twentieth century military theorists such a Liddell Hart, Fuller and Miksche. The effort is directed toward assessing the impact of firepower planned, resourced, and executed at the operational level; specifically the relationship between operational firepower and operational maneuver.

The Normandy campaign from July to August in 1944 is studied as a historical case where firepower, employed by U.S. and Allied forces, was the catalyst for operational maneuver and the success of a campaign. This case study focuses principally on Operation Goodwood, Operation Cobra, and the Battle of the Falaise Pocket as examples where operational firepower played a preeminent role in the success of a series of operations culminating in the success of a campaign. Lastly, the monograph analyzes the lessons of this campaign and the relevance of these lessons for application at present in the NATO theater in light of changes since World War II in military technology and military techniques.

Table of Contents

SECTION 1

Introduction

Field Manual (FM) 100-5, dated May 1986, the current codification of the U.S. Army's overall doctrinal outlook toward warfighting, defines the operational art as:

> "...the employment of military forces to attain strategic goals in a theater of war or theater of operations through the design, organization and conduct of campaigns and major operations."(1)

FM 100-5 further states that "...while operational art sets the objectives and pattern of military activities," tactics as practiced by "corps and smaller unit commanders" translates potential "combat power" into victory.(2) The dynamics of "combat power" are subdivided into maneuver, firepower, protection and leadership.(3)

At first glance the thrust may appear to be that while the operational commander--by implication someone above corps--designs, organizes and conducts campaigns, it is left to the corps and divisions (brigades and battalions) to exercise the combat power dynamics at the tactical level and secure a series of victories which will lead to operational success. When one begins to dissect each subset of combat power, our doctrinal guide seems to accept that maneuver, firepower, and protection (given that leadership obviously applies to the commander-in-chief as well as to the squad leader) have operational as well as tactical aspects. For example "...maneuver occurs at both the operational and tactical levels".(4) Operational maneuver seeks

a decisive impact on the campaign while tactical maneuver seeks to set the terms of combat in battle. Similarly both operational and tactical commanders take all measures available to provide protection to their soldiers "and prevent unnecessary loss of life".(5)

The final dynamic of combat power, which will be the focus of this paper, is that of firepower. While generally viewed as a tool of the tactical commander designed to "facilitate maneuver by suppressing enemy fires and disrupting the movement of his forces", the tactical commander may also employ his fires "independent of maneuver to destroy, delay, or disrupt uncommited forces". This second use is a category of firepower application acceptable as within the purview of the operational commander as stipulated in FM 100-5 to "...disrupt the movement, fire support, command and control, and sustainment of enemy forces".(6)

The missing aspect or doctrinal gap is the potential for firepower to be applied at the operational level to facilitate operational maneuver in the execution of campaign or major operation. Are there historical roots or precedents for the application of firepower at the operational level to allow decisive operational maneuver to occur? Is there a body of theory that speaks to and either supports or refutes the feasibility of the operational application of firepower? Do the answers to either of these have any real relevance to the U.S. Army today considering present and nearterm technology to acquire and attack enemy forces?

The attempt here will be to assess this doctrinal concept of fire and maneuver at the operational level and to determine if it has any current relevance. It will take the following form.

Any theoretical analysis of the application of firepower at the operational level must focus on the twentieth century, specifically the period after World War I. The theoretical underpinnings of any argument pro or con cannot come directly from the writings of Clausewitz, Jomini, or de Saxe. Their experience did not exceed the narrow direct application of lethal but limited firepower as an integral part of positioning and destruction via direct engagements between relatively immobile forces. For this reason, this paper will restrict the search for a theoretical thread to the works of Liddell Hart, JFC Fuller, and F.O. Miksche as men who pondered the realities of twentieth century warfare. They understood the ranges and lethality of modern weapons, the speed of mechanized warfare, the potential of the airplane, and the tyranny of modern logistics.

Secondly, the search for historical precedents with any meaning for today's armies must begin with World War II. Although it can be plausibly argued that World War I provides an abundance of occasions where firepower was used as a principal tool to provide opportunities for maneuver in the search for operational success, operational maneuver rarely took place, at least on the Western Front where the highest densities of firepower were concentrated. Furthermore, new technology has reduced the relevance of the Great War experience.

The post World War II experience of the U.S. Army, Korea and Vietnam, while including massive amounts of indirectly delivered air and artillery in support of maneuver forces, provides few opportunities to analyze where firepower facilitated operational maneuver. Both were also limited conflicts with the majority of the ground combat planned and executed below the corps level.

That leaves World War II. The best example of the massive, multi-dimensional application of firepower to facilitate maneuver was the series of battles in July and August of 1944 fought by the allies to break out of the Normandy beachhead, clear German forces from Western France, and secure crossings on the Seine in preparation for the final campaign into Germany. This campaign, from the Normandy bridgehead to the Seine, demonstrates several facets of modern warfare applicable to an assessment of the relationship between firepower and maneuver at the operational level and the relationship this might have to current U.S. doctrine.

First, it is a self-contained campaign with strategic significance and therefore meets the 1986 definition of the operational art. Secondly, it involved a preponderance of U.S. forces, making lessons arguably more relevant to future U.S. doctrine. Third, although somewhat antiquated by today's standards, the examples include all elements of modern warfare, to wit: mobile mechanical forces to include tanks and field artillery; naval gunfire, massive air power and the problems of integration of this air power with the ground maneuver plan; air defense considerations (a minor concern for the allies); the challenges of coali-

tion warfare and the synchronization of large forces; difficulties of command and control; and finally, the tyranny of modern logistics.

The discussion will focus specifically on the British attempt to break out of the Normandy bridgehead around Caen in a series of assaults culminated by Operation Goodwood; the successful American breakout in the Western section of the bridgehead, Operation Cobra; and the concentration and virtual destruction of German forces in the "Falaise Pocket" following the Normandy battle but preceding the advance to the Seine. The first two of these operations, Goodwood and Cobra, will be assessed to test the hypothesis that the planning of fires was conducted at such a level and executed with such breadth and intensity that they had to be categorized as operational fires to support operational maneuver. The third example, the "Falaise Pocket," will be reviewed to show the operational impact firepower can have when operational maneuver fails.

Finally, the lessons of this theoretical review and historical case analysis will be used to evaluate the current utility of the operational application of fire power on a modern nuclear or conventional battlefield in the NATO setting.

SECTION II

Theoretical Reviews

GENERAL

Although the dismissal of pre-twentieth century theorists as not germane to a discussion of the relationship at the operational level of fire and maneuver may appear to be so abrupt as to be intellectually unfair, this is not meant to imply that the theories of Clausewitz and Jomini are not relevant today. They can and did serve as antecedents to much of what Liddell Hart, Fuller, and Miksche have to offer. It is just that the last three speak most directly to the problems of the interrelationship in modern war of fire and maneuver. That being said, just what do Liddell Hart, Fuller and Miksche have to offer?

B.H. LIDDELL HART

A veteran of the trenches of the Great War and the years of stalemate forced on the combatants by their lack of mobility, Liddell Hart was one inter-war theorist who saw innovations in fire power delivery as a means to pursue an indirect approach by attacking an enemy's weakness in the vertical dimension. Although for reasons of humanity generally opposed to the concept of total war practiced within technological constraints by all participants in World War I, Liddell Hart foresaw the use of airpower as a way to "jump over the opposing Army" thereby "disposing of his shield" by using the "third dimension of warfare".(7)

A firepower as well as maneuver advocate, Liddell Hart believed that it was: "...firepower that arrives at the right time and place, that counts in war--not manpower".(8) That was to be most efficiently accomplished by the "use of aircraft in fighting cooperation with troops, as an indirect augmentation of their hitting power".(9) Further, the method he ceaselessly advocated was that of the "indirect approach in any form that achieves surprise, while the means which I insisted on as necessary in war is the combination of the aeroplane and the tank" and the axiom that:

> "No attack in modern war is feasible or likely to succeed against an enemy in position, unless his resisting power has already been paralyzed either by some form of surprise or preponderating fire".(10)

In much of this, one can see fruits of Liddell Hart's war experiences, but he was more of a visionary when it came to the foundling air arm. The aircraft were in his view, most:

> "Likely to be used in land fighting wherever the enemy forces are assembled in density--as when moving to attack" or against his "long narrow arteries and concentrated sources of supply".(11)

Liddell Hart also believed that:

> "An army in the field must have its operative air force under it control" and that "...close operation of low flying aircraft for offensive armor forces" was a must.(12)

Finally, the constraint of target acquisition was evident in his warning that:

> "Decisive effect of air depends on two conditions--now far the enemy air force is intelligently used and how far the enemy offers convenient and sensitive targets."(13)

Liddell Hart understood that Clausewitz was correct in his belief that defense was the stronger form of war and that this dominant position was further enhanced by the machine-gun, anti-tank gun, and anti-aircraft weapons. He also believed that indirectly delivered, accurate firepower could affect this dominance. Liddell Hart's principal focus in his theoretical investigations of the future of air power during the inter-war period focused on its strategic employment. This theoretical development was also a platform from which he could espouse his abhorrence of total war. On the other hand, it can be seen from his writings that his thoughts frequently turned to the use of air-delivered firepower at the tactical and operational levels. His charge to provide close air support to mobile formations, to assign air forces to operational ground commanders, and to attack massing forces, lines of communications and logistical installations speak to employment of air firepower to support tactical and operational plans.

JFC FULLER

Having been present at Cambrai and as one of the twentieth century's strongest proponents of tanks in the warfare of the present and future, Fuller's experiences also led him inexorably toward the application of firepower as one means to overwhelm a dominant defensive position. He saw in the March 1918 German offensive the effect of an attack against an army's command and control, reserve formations, and logistical apparatus by a force that had penetrated forward defenses and was moving at will in

the enemies' rear. The British near collapse as a result of the Second Battle of the Marne had such a profound impact on Fuller that he quickly presented his own proposal for ending the war to the British High Command. Written in May of 1918, it was labelled "Plan 1919", because of the anticipated delay before execution.(14) Although never implemented, "Plan 1919" became the springboard for Fuller's inter-war reveries on the future of warfare.

Reproduced in his 1936 autobiography, Fuller's plan was indeed visionary but probably unexecutable by British forces in 1919 due to material shortages and training deficiencies. Fuller did, however, foresee the vital role that firepower could have in support of maneuvering armor forces as they attempt to penetrate forward defensive positions:

> "To penetrate or avoid...belt of resistance, which may be compared to a shield protecting the system of command, two types of weapons suggest themselves: the aeroplane and the tank."(15)

Further, the need for close cooperation between air and ground, particularly in offensive operations was highlighted:

> "The tank will have to rely on aeroplanes for its security and preservation...aeroplanes will bear to thanks a similar relationship as cavalry to infantry in the old days...advanced guard, reconnaissance, and assist in resupply and command and control."(16)

While Fuller's "Plan 1919" was operational in scope, his discussions of indirect firepower delivered either by aeroplanes, or (as he foresaw in some army of the future) self-propelled armored artillery appeared to have more of a tactical focus. Con-

versely, his view that the defensive belt of the enemy was there also to control combat support and service forces and that destruction of these "softer" elements could collapse the shield was more operational in outlook.

FERDINAND O. MIKSCHE

A Czechoslovak military officer who escaped to Britain after the fall of his country, Miksche published a 1942 treatment on Blitzkrieg based on his experiences serving with the Republican Army in Spain and his studies of the tactics used by the Germans in Poland and France during the early stages of the Second World War. Although not an "inter-war" publication, the principles outlined in Miksche's Attack: A Study of Blitzkrieg Tactics were readily available to Allied military officers well before the Normandy invasion in June 1944.

While Miksche's analysis of German military philosophy and the tactics used by the Germans in Spain, Poland, and France were instructive, his chapter on the "air arm over battle" in the Spanish Civil War graphically described the impact that absolute air superiority can have at the tactical and operational level. For example, in a massive undertaking by 1938 standards:

> "Air power was used...effectively in the Aragon fighting...defense positions were attacked by some 700 planes...using three distinct methods: high altitude bombing, low flying attacks, and dive bombing."(17)

Miksche also observed how the "air arm could isolate the field of battle from the rear...protect flanks...link and give cohesion to separate and isolated actions. But his fundamental belief was

that "air superiority affects the land battle through the use of bombers as artillery".(18)

Miksche's view of the air arm as artillery was a lesson of the Spanish Civil War later put to effective use by the Germans. Air, as Miksche saw it, had certain advantages over artillery:

a) The "gun positions" (aerodromes) were miles away--which enabled one to go about preparations unobserved and mass his attack rapidly.

b) Air did not rely on road nets for forward displacement and resupply.

c) Air could neutralize not only the advanced elements of an enemy defense, but also the whole of its depth simultaneously--silence artillery, halt reinforcements, and isolate the fighting elements from their bases of supply.(19)

The breadth of Miksche's vision--based on the grim realities of experience--appears to be operational. He foresaw the air arm working in concert with massed armored forces, complementing rather than replacing artillery fire, and giving greater depth and flexibility to indirectly delivered firepower in support of maneuvering forces.

SUMMARY

This brief theoretical review of those inter-war military thinkers reflects the seeds of concepts to be used by U.S. and British planners in the Normandy Campaign. One can surmise that massing of airforces (bombers) to provide close support to a

breakthrough of massed armored columns as was done at Normandy would have been applauded by Liddell Hart, Fuller, and Miksche. They also would have understood how airpower could isolate the Normandy beachhead and disrupt German command and control, movement of reserves, and resupply of committed forces. Although the close integration of all means of delivery of indirect fire may not have been thought through as an operational technique, undoubtedly each theorist would agree that firepower in support of operational maneuver made sense and was or would be doable.

SECTION III

The Normandy Campaign

THE SETTING

This review of the Normandy campaign will focus on the events from D +30 until the battle of the Falaise Pocket, the third week in August, 1944. By D +30 the beachhead was secured but locked in stalemate. In the western sector, Bradley's First U.S. Army was grappling with the hedgerows of the bocage and the flooded marshlands of the Contentin Peninsula as well as stubborn German defenders. The terrain effectively took away the American advantages of tactical mobility and firepower. Their singular success had been the rapid seizure of Cherbourg, but the Germans had sabotaged the port facilities, and Cherbourg would not be useful as an allied logistics base until early August.

In the eastern portion of the bridgehead, the British Second Army under Sir Miles Dempsey was still struggling to capture the D-Day objective of Caen. In early July, Operation Epsom, an attempt by three British corps to turn the Germans east of Caen and then envelop the city, was floundering due to a combination of adverse weather, stiff German resistance, and poor British leadership. It was not lost on Montgomery that Epsom had proceeded without much air support resulting from the poor weather and limited visibility at the same time that Bradley:

> "Was reporting the far more encouraging news that the fortress of Cherbourg had fallen to Collin's VII Corps after a massive air, naval, and artillery bombardment".(20)

Montgomery had resisted the mid-June suggestion of concentrated bomber support offered by Air Chief Marshal Sir Trafford Leigh-Mallory, but feeling pressure from Churchill and Eisehower decided to adopt this concept in yet another attempt to capture Caen. The bombers, made available over the objections of their commander, Air Chief Marshal Arthur Harris, who was opposed to any employment of medium and heavy bombers other than to attack Luftwaffe bases and German industry, were for support of Operation Charnwood. Charnwood was to be a direct assault on Caen to capture the city and secure crossing sites over the River Orne as a precursor to a British breakout to Falaise or the Seine. Montgomery asked Bomber Command "to blast a path open for the advancing ground forces by heavy saturation bombing", and there appears to have been little debate over the planned employment of some 450 heavy bombers for the task.(21) At 2200 hours on 7 July 1944, British heavy bombers began a one-hour preparation which included 6000 one-thousand pound bombs dropped over a 4000-yard by 1500-yard area in addition to the normal fighter bomber and artillery preparations. After two days fighting, British forces seized the northern portion of Caen, but German forces still clung to the southern bank of the Orne preventing any continued British advance. In retrospect Operation Charnwood was a Pyrrhic victory for the British, aided little in any meaningful way by the carpet bombing. The Germans were surprised by the bombing, but most of their losses came during the two day fight for the city. More died from Hitler's hold-at-all-cost dictum than from

British bombs. Weigley in Eisenhower's Lieutenants points out that:

> "Unfortunately the heavy bombs had so badly cratered the area that bulldozers often had to fill in the holes before British and Canadian troops could cross them. Though many of the Germans in the area were stunned by the aerial bombardment and isolated from support, most recovered and resisted with their customary tenacity."(22)

Montgomery was more enamored of Bomber Commands assistance. He claimed in his postmortem of Charnwood that:

> "Investigations showed the tremendous effect of the heavy bombing on the enemy...The Bomber Command attack played a vital part in the success of the operation"(23)

This then appears to be the key lesson learned from Charnwood. Although few militarily relevant targets were struck by the very accurate bombing and the bombardment seemed to have little meaningful effect on the Germans, the bombing had a great psychological impact on British and Canadian leaders. The bombing signaled the beginning of a moderate British success after having been stymied before Caen for nearly a month. Whether carpet bombing was the key to limited victory in Charnwood is not material; it had appeared to be the catalyst for success, and that was enough for the beleagured Montgomery. D'Este says it best:

> "Despite the questionable tactical benefits of the bomber raid, the operation did serve to convince the ground commanders of the value of such operations."(24)

Although the British Second Army had improved its position in and around Caen and the American First Army had Cherbourg, the stalemate of the bridgehead was still a reality more than a month after D-Day. The Allied situation in early July was that:

"The elusive high ground of the Caen-Falaise Plan still lay in German hands, the Caen bridge head remained in satisfactorily small, high casualties to the infantry had left manpower problems more acute than ever and, to add to Montgomery's problems, Bradley's offensive was stalled in the mud and bocage of western Normandy. Time remained the critical factor; it was essential that the Allied commanders develop and execute a concerted plan for a breakout."(25)

Finally, the ruse of Operation Fortitude, the fictitious army that was to invade the Pas de Calais, was wearing thin. The Germans might release at any moment the forces held in reserve in response to this masterful deception and send them to Normandy. Faced with these pressures, on 10 July Montgomery, Dempsey, and Bradley approved two plans to burst out of the Normandy Bridgehead.

OPERATION GOODWOOD

The U.S. and British breakout plans were originally synchronized in time so that the U.S. push south to the vital Brittany ports would not be hindered by German reinforcements redeployed from the British-Canadian front. The British Second Army would first attack in an area east of Caen and the U.S. attack in the western portion of the bridgehead would follow. The plans were executed as sequenced if not as timed. Goodwood went first.

Goodwood was Dempsey's "brainchild" and was designed to:

* Pin German forces committed against the Second Army preventing their use as reinforcements elsewhere.

* Expand the overcrowded bridgehead, making room for reinforcements and supplies.

* Complete the capture of Caen, thereby removing German

control of crossing sites over the Orne.

* Secure space for badly needed Allied airfields on the Bourguebus plateau east of Caen.

* Assuming success, break out to Falaise.(26)

Dempsey was trying to take advantage of his preponderance in armor vis-a-vis the Germans by consolidating his three armored divisions in one corps (the 8th) which would tear through the Germans and push east of Caen, sweep the Bourguebus Ridge, and then exploit success in the good tank country beyond. Three other Allied corps would also have a role. The 1st and 12th British Corps would perform supporting attacks on the Second Army flanks while the Canadian 2nd Corps would cross the Orne and capture the rest of Caen.(27)

Dempsey had also been one of those who was most impressed by the preparation bombing at the onset of Charnwood and sought the same support for his plan. His aerial bombardment was to "clear the way for the armor to make a rapid penetration" and "neutralize German positions further to the rear". The air force would also be required to "neutralize" German gun positions on the Bourguebus Ridge.(28) To avoid the problem of Charnwood where the bombing occurred 5 to 6 hours before the ground attack thereby allowing the Germans to recover, the Goodwood bombardment would commence just prior to the ground assault and would be "followed up by the massed artillery fires of three corps, supported by naval gunfire".(29) As was true of every British leader at this stage of the war, Dempsey was principally con-

cerned with minimizing casualties. Infantrymen were rapidly becoming his scarcest resource.

At 0530 on 18 July the first of over 2000 heavy, medium, and fighter bombers of the Royal Air Force and the American Air Force dropped approximately 6000 one-thousand pound bombs and 9600 five-hundred pound bombs on three pre-designated target areas. A second wave at 0700 was unable to attack because of smoke and dust over the battlefield, but a third attack at 0830 delivered 13,000 hundred pound bombs and 76,000 twenty-pound fragmentation bombs in the Bourguebus Ridge area. Naval guns and artillery hurled another quarter of a million rounds onto the Goodwood battlefield.(30)

At first the British, overcoming the congestion of massed armored forces trying to use too few crossing sites over the Orne while meandering through friendly mine fields, broke through the dazed Germans. Pushing east and south around Caen, attacking forces reported that where the bombardment had been accurate, German defenses had been demolished. Unfortunately enough Germans survived that as British forces tried to push through the small villages beyond the Orne and toward Bourguebus Heights, 88's and Tigers began to engage them. German reinforcements and defensive depth coupled with inept British combined arms tactics and poor weather slowed the British drive. Casualties and equipment losses in British formations brought offensive operation to a halt by the 20th of July. Unable to regain the initiative without air power, redoubled by the difficulties of pushing

artillery and limited ammunition supplies east of the Orne, the Second Army was again stalemated. Dempsey had lost "270 tanks and 1500 men without cracking the Bourguebus Ridge".(31) More complete figures put total casualties within the four committed corps at 5500.(32) Of the original objectives Caen was captured, the bridgehead had been expanded at a terrible cost, but most importantly the Germans in front of the Second Army were not only being pinned in place but had themselves suffered grievously consuming equipment ammunition and soldiers at a rate the Germans could ill afford. That was to prove important over the next two weeks.

OPERATION COBRA

Bradley had the inspiration for Cobra. He claimed the concept of massive air bombardment in preparation for mechanzied offensive was a "logical consummation of ideas which he had held as far back as 1939".(33) He was not upset by the example of Charnwood and was not privy to the "lesson learned" from Goodwood, as his operation was due to being on 20 July--just two days after H-hour for Goodwood. Bradley liked what he knew about the combined effects of firepower in the battle for Cherbourg and believed that his able air commander, MG Elwood "Pete" Quesada, would prevent recurrence of the British problems at Charnwood.

Having secured a logical and spacious jumping off point after seizing St. Lo on 16 July, he planned to use the newly captured St. Lo-Periers road as an easily identifiable bomb line to synchronize air bombardment and ground forces attack while

ensuring the safety of his soldiers. The road also marked, in general terms, the southern edge of the Contentin Marshes, beyond which the terrain was more suitable for heavy vehicles--although still constrained by the ubiquitous hedgerows.

The plan was to use saturation bombing to spring VII Corps southeast toward Coutances and if all went well, then down the French coast to the Brittainy peninsula. The VII Corps was heavily weighted with three regular infantry divisions, two mechanized infantry divisions and two armored divisions. VIII Corps on the right and XIX Corps on left were to conduct supporting attacks. MG J. Lawton Collins--a personal favorite of Bradley's--was commander of the corps chosen for breakthrough and, potentially, for breakout and exploitation. Weigley describes the Cobra plan best:

> "The key to the initial breakthrough, to bursting the ...stalemate was to be partly Collin's heavy attack on a narrow front, the concentration ensured in American planning. Still more, air power was to provide the key. As Collins came into the planning, he and Bradley together called on the memories of the airstrike preceding the entrance into Cherbourg. The object was to escape a deadlock reminiscent of the First World War, they could call on...a truly massive aerial bombardment that could exceed by many orders of magnitude anything possible on the old Western Front."(34)

The planning for this bombardment foresaw a massive preparation along a 7000-yard stretch of the St. Lo-Periers road which was, as stated earlier, to act as a bombline for troop safety. The airmen originally sought a 3000-yard buffer zone between the bombline and American positions but eventually compromised on a 1200-yard safety margin for fighter bombers and 1450 for medium

and heavy bombers. It is unclear as to whether it was agreed that the bombers would fly parallel or perpendicular to the road. The first would allow for maximum troop safety; the second according to the Eighth Air Force, would lessen the exposure time of the aircraft to hostile fire while enhancing the accuracy and depth of the carpet bombing. The bombardment was to be conducted by 700 fighter bombers flying in two waves against targets just south of the bombline, followed by 1800 heavy bombers attacking targets to a depth of 2500 yards, and culminating as 400 medium bombers struck ten minutes after jump-off time for the ground forces against the extreme southern half of the target area.(35) Collins was also given significant artillery support as his corps was allotted twenty-one non-divisional artillery battalions and 140,000 extra round of ammunition.(36)

The same weather that ended Goodwood delayed the start of Cobra from 20 July to 25 July. An attempt to kick off on 24 July ended in disaster as aircraft that could not be recalled dropped 700 tons of bombs, some on American units killing 25 and wounding 171, before the premature strike was terminated. The incident also showed that the Air Force was planning to fly perpendicular to the road designated as the bombline as opposed to Bradley's preference for a parallel approach. It was too late to change, however, and on the 25th the strike went in as the Air Force wanted it and Cobra began.

The bombardment on the 25th again resulted in some U.S. casualties, but was also devastating to the frontline German

forces. General Bayerlein of the dug in Panzer Lehr Division characterized it as:

> "Hell...the planes kept coming...my front lines look like a moonscape and at least 70% of my personnel were out of action...All my front line tanks were knocked out...we could do nothing but retreat...a new SS Tank Battalion was dispatched to us with 60 tanks...they arrived with five."(37)

Operation Cobra, given birth by this massive air bombardment, succeeded where Goodwood failed for many reasons. The opposition was weaker and without commanding terrain. The majority of German Panzer units still opposed Dempsey's Second Army around Caen. American tactics were sounder, as they fought as combined arm teams where British tanks outran their infantry and artillery support. The weather remained clear so that air support was there constantly to provide reconnaissance and attack targets of opportunity for advancing U.S. columns. U.S. leaders were also more inclined to take advantage of opportunities presented than were their more cautious British counterparts.

By 29 July, four U.S. armored divisions poured south from Contances as German defenses crumbled and their remnants withdrew eastward opening the door to Brittany. Quesada's IX Tactical Air Force provided superb support:

- "From the beginning of Cobra until the end of July, fighter-bombers in the VII Corps zone alone claimed 362 enemy tanks and assault guns destroyed and 216 damaged, 1337 other vehicles destroyed and 280 damaged."(38)

But this was no accident. Innovations in cooperation and communications gave the First Army an unbeatable air-ground team, of the kind perhaps last seen in May 1940 as the Germans raced

across northern France. Cobra, begun in desperation, was the beginning of the end of the Normandy Campaign and a stunned Von Kluge complained:

> "It's a madhouse here...Someone has to tell the Fuhrer that if the Americans get through at Avranches they will be out of the woods and they'll be able to do whatever they want."(39)

FALAISE POCKET

With the collapse of the German Seventh Army in the face of Bradley's onslaught, on 1 August the U.S. commander activated a new 3rd Army under LTG George Patton to manage the exploitation and pursuit forces. Bradley became commander of the 12th U.S. Army Group, while his 1st U.S. Army was given to LTG Courtney Hodges. Montgomery's 21st Army Group was reorganized with Dempsey's British 2nd Army and a newly-formed Canadian 1st Army.(40)

While Patton cleared the Brittany Peninsula and simultaneously pushed forces south and east to turn the German southern flank, Hodges' 1st Army and Montgomery's 21st Army Group attempted to keep up the pressure in the northern sector from Caen to Vire. A desperate German counter-attack ordered by Hitler at Mortain on 7 August startled but did not stop the U.S. drive. The counter-attack had the effect of pushing more German forces deeper into a pocket being formed by Patton on the south, Hodges in the west, and Montgomery in the north. There was some debate over at what point west of the Seine this pocket was to be closed on the two German Panzer Armies and one Panzer Group inside, but

by the second week in August Montgomery had fixed on an area within his Army Group zone between Falaise and Argentan.(42) Canadian attempts to push from Caen to Falaise in Operation Totalize between 7 and 16 August were slow and frstrating. The Americans, although in Argentan by 16 August and beyond their Army Group boundary, were not permitted to go further toward Falaise.(42)

The failure of the Allies to close the Falaise-Argentan gap permitted the Germans to effect an organized breakout between 16 and 21 August; however, during much of this period three Panzer Armies were packed into a relatively small twenty by sixty miles. The allies with massive artillery support and unopposed air forces attacked this target-rich area incessantly, inflicting heavy casualties on the remains of German Panzer forces West of the Seine.

Throughout the battle of the Falaise gap, firepower was a key operational factor. The Canadian drive from Caen began with an air bombardment of some 3462 tons of explosives.(43) As feeble as the Canadian efforts appear to have been as they slowly pushed their way toward Falaise, by their own admission the limited success they enjoyed would have been impossible without concentrated air and artillery support.(44)

The firepower delivered within the pocket as the battle closed was so devastating as to have significantly affected the course of the campaign. Although there are varying judgments as to the amount of ordnance thrown at the Germans, it included the

combined attack by the artillery of three allied armies and massed aerial bombardment by all available Allied air forces. The results were devastating to the German hopes for continuing the fight west of the Seine. Of 80,000 troops thought to be in the pocket 10,000 died, 50,000 were captured, and only 20,000 escaped.(45) It is difficult to measure the equipment losses. The Canadians reported that within the northern sector of the pocket alone, they counted 344 tanks, 2447 soft-skinned vehicles and 252 guns destroyed or abandoned. Army Group B reports indicate that its eight surviving armored divisions came out with only 67 tanks and 30 artillery pieces among them.(46) The losses in communications equipment, maintenance shops and logistical support vehicles must have also been devastating for future operations.

The Battle of the Falaise Gap ended the Normandy Campaign. The proof is that although the Germans were able to escape with some of their forces between 16-20 August, by 19 August the Allies were at the Seine and by 25 August had captured Paris.

ROLE OF FIREPOWER IN THE CAMPAIGN

Max Hastings in Overlord describes the Allied progress after the landings as:

> "A steady, clumsy learning process. Each operation profited from the mistakes of the last, used mass firepower to wear down the Germans, absorbed disappointment without trauma."(47)

The Allied solder, he continued had the:

> "Means to dispense with personal fanaticism on the battlefield; their huge weight of firepower. Artillery and air power accomplished much of the killing of Germans that had to be done sooner or later to make a breakthrough possible".(48)

Perhaps the Normandy Campaign was not originally designed by Allied planners with the paramount principles of making full use of their firepower advantage and preserving infantrymen; it evolved into that. Without absolute air superiority, the Luftwaffe being virtually non-existent after D-Day, the ground campaign could not have succeeded. By the middle of July, massive bomber support of maneuver operations became the norm. Carpet bombing, as a technique to spring offensive maneuver, must receive at best mixed reviews. It was poorly targeted during Charnwood and again at Goodwood. The cratering problem made tactical maneuver difficult in each instance, although Dempsey tried to avoid it for Goodwood. The Goodwood mission given to the air force to suppress the German gun positions on the Bourguebus Ridge was an inappropriate one and did not work. But at Goodwood, British tactics failed as infantry and armor were not employed as teams in which the infantry had the mobility to stay with tanks. The weather also failed the British, taking away their air delivered firepower advantage just as the offensive began to sputter. At Cobra, carpet bombing accomplished what it was designed to do when finally employed properly. It partially destroyed and demoralized forward German defensive positions while keeping reinforcements away. It was properly concentrated, generally well targeted, and synchronized with the time of attack better than its two predecessors. Totalize was a small side-show compared to Goodwood and Cobra and was designed to screen a flank as opposed to springing a breakthrough.

Casualties among friendly forces during these bombing attacks were generally light when one considers the tonnage dropped and the rudimentary air-ground techniques employed. Whereas U.S. ground air controllers were eventually able to communicate with close support fighters and fighter bombers, coordination with medium and heavy bombers relied on preplanned terrain features, panel markers, colored smoke and distinguished marking of vehicles. During Totalize, for example, Polish ground forces marked their positions with yellow smoke while the RAF bombers used yellow smoke to mark targets. Thirty Poles were killed as a result.

The Allies were initially restricted in their use of artillery, as ammunition supplies were still coming over the shore. Naval gunfire and air power were available as offsets. In fact, the shortage of British 25-pounders first encouraged Dempsey to seek assistance from Bomber Command for Charnwood and Goodwood. Artillery ammunition was also under strict control and during the early phases of Cobra, a fact which caused General Collins to observe: "If artillery ammunition had been unrestricted...commanders would have been faster and our own casualties less". Weigley added that:

> "...the relatively indiscriminate power of aerial bombardment remained only a partial substitute for the more selective force of artillery".(49)

Whereas the specifics of the air bombardments for Cobra were coordinated between an Army and Air Force headquarters at what today would be defined as "operational level headquarters,"

Bradley provided operational direction of his artillery firepower by the allocation of non-divisional artillery battalions and ammunition to support them. The reinforcement received by Collins' VII Corps for the Cobra breakout has already been discussed. Later in the campaign, it was not uncommon for a division at the point of the advance to have seven to nine non-divisional artillery battalions supporting it. The British and Canadians were not quite as rich in artillery, but also routinely augmented their divisions with additional artillery for a specific phase of a battle. There is little doubt that the Allied advantage in artillery support had the same operational impact on the course of the campaign as did absolute air superiority.

SECTION IV

FIREPOWER AND OPERATIONAL ART

Within the confines of the doctrinal discussion at the introduction of this paper, the Normandy Campaign would, for a variety of compelling reasons, have to be considered a valid historical case study of operational firepower supporting operational maneuver.

The successful breakout of the Normandy bridgehead, coupled with the pursuit and near destruction of all German forces south and west of the Seine, obviously had strategic significance for the Allied conquest of Europe. The period from D-Day until the arrival of Allied forces on the Seine could be and has been logically and appropriately called a self-contained campaign followed by an operational pause. Accepting this, then the employment of firepower which was such a crucial, almost overriding factor in the planning and execution of battles and engagements within the campaign, had at least operational significance. Additionally, if one accepts that the series of battles leading to operational breakout of the Normandy bridgehead resulted in maneuver of operational significance to the campaign then one must accept that Goodwood and Cobra could be isolated as specific instances where firepower planned and delivered by operational headquarters with operational resources provided the impetus for operational maneuver.

As for the general role of firepower in the Normandy Campaign, without the Allied preponderance in the air and artillery

there would have been no bridgehead, breakout, pursuit, envelopment, destruction of enemy forces, exploitation to the Seine, or capture of Paris. In other words, there would have been no campaign or operational success. The headquarters at which much of the significant massed firepower was managed was generally at a level commensurate with the operational level of war. Firepower was multi-dimensional and multi-service as artillery, air power, and, early in the campaign, naval gunfire were coordinated by and in support of Army and Army Group operations. The locus of the planning effort, particularly for Goodwood and Cobra, was surely operational as Army, Army Group, Tactical Air Force, Bomber Command, Theater Air Force, and SHAEF were involved. Lastly, the tyranny of logistics played a significant role in the decision of *when, what type, and where* firepower could be used to dominate a particular battle or phase of the campaign. These logistical imperatives were operational in scope, level of concern, and magnitude of impact as they dealt with delivery of firepower.

In the final analysis, the Normandy Campaign amounted to the employment of an air army in close synchronization with one or more army groups, an arrangement which would be considered at the operational level by current U.S. and Soviet doctrine. Since the basic product of the Eighth Air Force was firepower and this product had to be coordinated not only with the movement or maneuver of ground forces but also with the ground delivered firepower being employed by the respective army groups then it would be difficult to argue that firepower cannot be planned, integrated and

delivered at the operational level for either an end in itself or to facilitate specific operational maneuver. The Normandy campaign is irrefutable evidence of the validity of the concept of firepower's linkage to maneuver at the operational level. Opertional art ultimately, therefore, boils down to the tools and how they are employed.

SECTION V

Lessons for Today

If one accepts the conclusions reached to this point, firepower as a distinct subset of combat power may be considered operational:

When it is a pervasive and indisputable factor in the success of a campaign with strategic significance.

When it is planned and resourced at headquarters concerned with the design, organization and conduct of campaigns and major operations.

When it directly contributes to the ground forces' ability to maneuver operationally.

When logistical constraints and considerations revolving around the when, where, and how firepower is massed and employed are operational in scope.

Assuming the validity of these criteria for the 1944 Normandy Campaign, are they equally applicable to the realities of war in Europe in the 1980's or 1990's? Does the concept of operational firepower in general or specifically as a tool to provide the impetus for decisive operational maneuver have current relevance?

The answer must be that the evolution of the technology of warfare has made some aspects of the Normandy case reproducable in a modern NATO setting, others not. For example, although indirectly delivered firepower (air, missiles, rocket and artillery) may be pervasive on a future NATO battlefield, it is doubt-

ful whether one side will consistently hold the upper hand as the Allies did in Normandy for 45 to 60 days of the fight. The balance of airpower, sophistication of air defense systems, and vulnerabilities in logistical infrastructure on both sides would not allow continued domination for the entirety of the fight for the Central Front in Europe. On the other hand, one can argue that the side that wins will be the one that can most consistently prevail in delivery of massive firepower when and where it will be the most effective.

The remainder of the criteria may have more validity in the modern setting. Discounting nuclear fires for the sake of discussion, intermediate and short range "tactical" missiles as well as sophisticated fighter bombers or high altitude bombers that can deliver conventional munitions over a broad area provide opportunities for corps, army group, and theater commanders to coordinate, plan and use firepower to support operational schemes. It is also plausible that the efficiency of firepower delivery systems will be greatly dependent on intelligence or target acquisition and logistical realities of operational scope.

Technology has in fact enhanced the utility of firepower as an operational tool. Target acquisition from satellite imagery, remotely piloted sensors, and radars can locate targets accurately and in depth. Smart, even "brilliant" munitions make rapid accurate attack more effective at significantly greater ranges. Continued improvements in terminal homing submunitions and delivery ranges of future generations of ground-launched mis-

siles will give the maneuver commanders from division to army group the ability to deliver massive, lethal blows complementing more conventional artillery fires and the air war.

As is true in every historical case, the precise variables used in this analysis to refine the definition of firepower at the operational level are unlikely to appear again in future conflict. They do, however, demonstrate that indirectly delivered firepower can and did contribute significantly to the course of a "campaign or major operation".(50) It also demonstrates that there can be a direct cause and effect relationship between operational firepower and operational maneuver. There is no reason that this cannot happen again.

ENDNOTES

1. Department of the Army, FM 100-5, Operations, p. 10.
2. Ibid., p. 10.
3. Ibid., p. 12.
4. Ibid., p. 12.
5. Ibid., p. 13.
6. Ibid., p. 13.
7. Liddell Hart, Paris: Or the Future of War, p. 43.
8. Liddell Hart, Thoughts on War, p. 66.
9. Ibid., p. 66.
10. Brian Bond, Liddell Hart: A Study of His Military Thought, p. 58.
11. Liddell Hart, Thoughts on War, p. 172.
12. Ibid., p. 172.
13. Liddell Hart, When Britain Goes to War, p. 50.
14. Anthony John Trythall, Boney Fuller, p. 59-61.
15. JFC Fuller, Memoirs of An Unconventional Soldier, p. 147.
16. Ibid., p. 149.
17. F.O. Miksche, Attack: A Study of Blitzkrieg Tactics, p. 27-28.
18. Ibid., p. 29.
19. Ibid., p. 30.
20. Carlo D'Este, Decision at Normandy, p. 240.
21. Ibid., p. 309-310.
22. Russell Weigley, Eisenhower's Lieutenants, p. 136.
23. D'Este, op. cit. p. 315.
24. Ibid., p. 318.

25. Ibid., p. 321.

26. Ibid., p. 354-358.

27. Ibid., p. 357.

28. Ibid., p. 358-359.

29. Ibid., p. 371.

30. Ibid., p. 371.

31. Weigley, op. cit. p. 146.

32. D'Este, op. cit. p. 385.

33. Ibid., p. 343.

34. Martin Blumenson, Breakout and Pursuit, p. 214-215.

35. Weigley, op. cit. p. 137-138.

36. Ibid., p. 151.

37. Blumenson, op. cit. p. 219.

38. D'Este, op. cit. p. 402.

39. Ibid., p. 406.

40. Ibid., p. 407.

41. Ibid., p. 408-409.

42. Ibid., p. 424-425.

43. Ibid., p. 431.

44. Max Hastings, Overlord, p. 298.

45. Ibid., p. 305.

46. D'Este, op. cit. p. 430-431.

47. Hasting, op. cit. p. 313.

48. Ibid., p. 317-319.

49. Weigley, op. cit. p. 162.

50. FM 100-5, p. 10.

BIBLIOGRAPHY

Government Manuals, Pamphlets, and Studies

FC 100-15, Corps Operations. Ft. Leavenworth, KS: U.S.A.C.G.S.C., 1984.

FM 100-5, Operations. Washington D.C.: Department of the Army, 1986.

USREDCOM Pamphlet 524-4, Joint Attack of the Second Echelon (J-SAK). MacDill AFB: U.S. Readiness Command, 1982.

"Air Cooperation with Troops in Normandy", IX Air Force Operations Analysis, September 1947.

"Bombing and Operation Cobra", Historical Division, European Command, October 1945.

"Caen Operation (Goodwood)", Army Air Force Evaluation Board, July 1944.

"Normandy, Cobra, and Mortain", Historical Division, European Command, July 1949.

"Operation Cobra Reports", Army Air Force Evaluation Board, July 1944.

"Operation Goodwood", British Army Staff, July 1944.

BOOKS

Bradley, Omar N., A General's Life. New York: Simon and Schuster, 1974.

Blumenson, Martin, Breakout and Pursuit. Washington, D.C.: Office of the Chief of Military History, 1984.

Bond, Brian, Liddell Hart: A Study of His Military Thought. London: Cassell & Co. Ltd., 1977.

Carter, Kit C. and Mueller, Robert, The Army Air Forces in WWI, Combat Chronology 1941-1945. Washington, D.C.: U.S. Government Printing Office, 1973.

Clausewitz, Carl von, On War, edited by M. Howard and P. Paret. New Jersey: Princeton University Press, 1976.

D'Este, Carlo, Decision in Normandy. New York: E.P. Dutton Inc., 1985.

Fuller, JFC, Memoirs of An Unconventional Soldier. London: Ivor, Nicholson, and Watson Ltd., 1936.

Hamilton, Nigel, Master of the Battlefield. New York: McGraw-Hill Book Co., 1983.

Hastings, Max, Overlord. New York: Simon and Schuster, 1984.

Liddell Hart, B.H., Thoughts on War. London: Faber and Faber Ltd., 1944.

Liddell Hart, B.H., Paris: Or the Future of War. London: Kegan, Paul, Trench, Trimmer & Co. Ltd., 1925.

Liddell Hart, B.H., When Britain Goes to War. London: Faber and Faber Ltd., 1935.

McKee, Alexander, Caen: Anvil of Victory. New York: St. Martin's Press, 1984.

Miksche, F.O., Attack: A Study of Blitzkrieg Tactics. New York: Random House, 1942.

Montgomery, Field Marshall the Viscount, Normandy to the Baltic. Cambridge, MA: The Riverside Press, 1948.

Natkiel, Richard, Atlas of World War II. New York: The Military Press, 1985.

Patton, George S., Jr., War As I Knew It. Boston: Houghton Mifflin Co., 1947.

Thompson, R.W., Montgomery the Field Marshal. New York: Charles Scribner's Sons, 1969.

Trythall, Anthony J., Boney Fuller. New Brunswick, N.J.: Rutgers University Press, 1977.

Weigley, Russell F., Eisenhower's Lieutenants. Bloomington, IN: Indiana University Press, 1981.

END

DATE

FILMED

6-88

DTIC